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Conference Abstract

Darwin Core for Agricultural Biodiversity: A metadata extension proposal

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Abstract

Agricultural Biodiversity has been defined by the Convention on Biological Diversity as the set of elements of biodiversity that are relevant to agriculture and food production. These elements are arranged into an agro-ecosystem that compasses "the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems" (UNEP 1992). As with any other field in Biology, Agricultural Biodiversity work produces data. In order to publish data in a way it can be efficiently retrieved on web, one must describe it with proper metadata. A metadata element set is a group of statements made about something. These statements have three elements, named subject (thing represented), predicate (space filled up with data) and object (data itself). This representation is called triples. For example, the title is a metadata element. A *book* is the subject; *title* is the predicate; and *The Chronicles of Narnia* is the object. Some metadata standards have been developed to describe biodiversity data, as ABCD Data Schema, Darwin Core (DwC) and Ecological Metadata Language (EML). The DwC is said to be the most used metadata standard to publish data about species occurrence worldwide (Global Biodiversity Information Facility 2019). "Darwin Core is a standard maintained by the Darwin Core maintenance group. It includes a glossary of terms (in other contexts these might be called properties, elements, fields, columns, attributes, or concepts) intended to facilitate the sharing of information about biological diversity by providing identifiers, labels, and definitions. Darwin Core is primarily based on

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taxa, their occurrence in nature as documented by observations, specimens, samples, and related information" (Biodiversity Information Standards (TDWG) 2014). Within this thematic context, a master research project is in progress at the Federal University of Minas Gerais in partnership with the Brazilian Agricultural Research Corporation (EMBRAPA). It aims to apply the DwC on Brazil's Agricultural Biodiversity data. A pragmatic analysis of DwC and DwC Extensions demonstrated that important concepts and relations from Agricultural Biodiversity are not represented in DwC elements. For example, DwC does not have significant metadata to describe biological interactions, to convey important information about relations between organisms in an ecological perspective. Pollination is one of the biological interactions relevant to Agricultural Biodiversity, for which we need enhanced metadata. Given these problems, the principles of metadata construction of DwC will be followed in order to develop a metadata extension able to represent data about Agricultural Biodiversity. These principles are the Dublin Core Abstract Model, which present propositions for creating the triples (subject-predicate-object). The standard format of DwC Extensions (see Darwin Core Archive Validator) will be followed to shape the metadata extension. At the end of the research, we expect to present a model of DwC metadata record to publish data about Agricultural Biodiversity in Brazil, including metadata already existent in Simple DwC and the new metadata of Brazil's Agricultural Biodiversity Metadata Extension. The resulting extension will be useful to represent Agricultural Diversity worldwide.

Keywords

metadata, Darwin Core, agricultural biodiversity

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